

## LOCAL FOOD PLANT SPECIALIZATION IN NATURAL FIELD POPULATIONS OF THE SOUTHERN ARMYWORM, *SPODOPTERA ERIDANIA*, (LEPIDOPTERA: NOCTUIDAE)<sup>1</sup>

J. Mark Scriber<sup>2</sup>

**ABSTRACT:** The southern armyworm, *Spodoptera eridania*, is observed feeding on pokeweed, *Phytolacca rigida*. The larval feeding behavior suggests this insect may be locally specialized in its native south Florida habitat.

The southern armyworm, *Spodoptera eridania* (Cram.) is generally believed to be one of the most polyphagous species of Lepidoptera known (Krieger et al., 1971). Individuals of this insect species will accept and successfully grow on dozens of chemically and taxonomically diverse host plants belonging to at least 33 different families (Soo Hoo and Fraenkel, 1966a,b; Tietz, 1972; Brattsten et al., 1977; Scriber, 1984).

Little is known, however, about either the actual field biology or the natural food plants of the larvae. Indeed, the natural foodplant(s) of *S. eridania*, to my knowledge, have not been identified. Individual specimens, especially late instar larvae, have been collected from various garden and introduced plants in Florida (Dale Habeck, pers. comm.). Among these records, pigweed, *Amaranthus spp.* (Amaranthaceae) and pokeweed, *Phytolacca americana* L. (Phytolaccaceae) are primary candidates as natural hosts (Crumb, 1927; and Dale Habeck, pers. comm.).

*Spodoptera eridania* is one of nine species of the genus in the continental United States, and as many as 8 of these species occur in one area of southern Florida (Levy and Habeck, 1976).

While collecting on August 8, 1985 in south central Florida (Highlands County) I discovered several apparently separate groups of southern armyworms feeding upon pokeweed, *Phytolacca rigida* (Small). An extensive search of the literature reveals that this particular plant species has never been reported as a food for the southern armyworm. The plant species occurs only from Florida into southeast Texas, southern Georgia and southwest South Carolina (Duncan and Foote, 1957). The populations I investigated were in recently disturbed sandy soils adjacent to muck soils along county route 619 east of Lake Placid, Florida. The habitat in southern Florida is semi-tropical and presumably allows year-round survival of *S. eridania* without a winter diapause. Caterpillars of this insect species have

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<sup>2</sup>Department of Entomology, University of Wisconsin, Madison, WI 53706

been reported from Florida, Mississippi, Texas and Georgia, north to Tennessee (Crumb, 1927, 1932).

Pokeweed plants, very recently stripped to only leaf midribs, the stalk, and fruit, harbored numerous larvae under the midribs in what could be considered to be a typical thermo-regulatory shade-seeking aggregation (Fig. 1); see Casey 1976) while adjacent pokeweed plants with leaves contained dozens of actively feeding 2nd-5th instar larvae. This noon-time feeding activity in 92-95°F temperatures (35°C) was typical of each of the four feeding groups I observed (Fig. 1). In spite of a diversity of grassy and broad-leaved plants throughout the infested regions of the roadside/woods edge, the only plants with visible signs of armyworm feeding damage were pokeweeds, although dozens of other foodplant choices existed in the immediate vicinity. Whether this is a behavioral, biochemical, physiological, or ecological adaptation is unknown, but warrants additional research.

In summary, the southern armyworm, known to most insect ecologists as perhaps the champion generalist in feeding capabilities, appears to be locally specialized in its foodplant choices. Voucher specimens of insect larvae were collected of various instars (Fig. 2) and brought back to the University of Wisconsin at Madison to establish a first generation laboratory colony for subsequent research. Specimens of *P. rigida* have also been retained as vouchers in our laboratory.



Fig. 1. Southern armyworm larvae feeding on *Phytolacca rigida* during the noon time heat (34-35°C).



Fig. 2. *Spodoptera eridania* in this final instar.

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